AHMAD OMAR AHSAN

+880 1797 997955| ahmadomar@iut-dhaka.edu |
linkedin.com/in/ahmad-omar-ahsan/ | https://ahmad-omar-ahsan.github.io/

EDUCATION

Bachelor of Science | **Computer Science and Engineering** Jan. 2017 – March 2021
Islamic University of Technology, Gazipur, Bangladesh 3.65 / 4.0

- Relevant coursework: Linear Algebra, Data Structures, Numerical Methods, Machine Learning, Digital Signal Processing, and Pattern Recognition.

WORK EXPERIENCE

AI Engineer Feb 2021 – June 2022
Intelligent Machines Dhaka, Bangladesh

- Developed keyword transformer using TensorFlow for key-word classification. This model was developed to classify keywords spoken in different Bengali dialects to detect keywords spoken in sales pitch.
- Trained and deployed a text detection and recognition model using PyTorch for text classification and localization. This model was developed to extract information from hand written receipts from local markets.

AI Intern Nov 2019 – Jan 2021
Intelligent Machines Dhaka, Bangladesh

- Fine-tuned Efficient-Det to detect point of sales material in the image. The model enabled the client to check how many point of sales material were deployed in the market.
- Created scripts to optimize data generation, training and testing for deep learning models.

RESEARCH EXPERIENCE

Research fellow Jun 2022 - Feb 2023
Hyperbolic Deep Learning for Computer Vision | Fatima Fellowship

- Hyperbolic image classification using hyperbolic graphs, hyperbolic transformers, and hyperbolic MLP.
- Generative heat modeling for MRI generation from latent codes.

Research contributor Nov 2020 - June 2021
Sound Generation Group | Sound of AI

- Worked as a research contributor in one of the largest open-source research project.
- Developed and trained a WaveNet-based encoder for sound generation.
- Carried out a literature review of different sound generation modules.

PUBLICATIONS

- MM Morshed*, AO Ahsan*. **Attention-Free Keyword Spotting**. ICLR 22 PML4DC workshop. [Paper][Code]
- MM Morshed, AO Ahsan, H Mahmud, M Hasan. **Learning Audio Representations with MLPs**. Preprint. [Paper] [Code]
- The sound of AI†. **From Words to Sound: Neural Audio Synthesis of Guitar Sounds with Timbral Descriptors**. AIMC 2022. [Paper] [Code]

ACHIEVEMENTS

Hear Challenge 2021, NeurIPS 2021 Oct 2021
HEAR evaluates audio representations using a benchmark suite across a variety of audio domains.

- 1st place: Speech Commands Full, Speech Commands 5H, Mridingham Tonic
- 3rd place: Mridingham Stroke, Beehive States

SKILLS

Languages: Bengali (Native), English (Fluent)
Programming: Python (PyTorch, TensorFlow, Weights and biases), C++, C, Java

*Equal contribution
†Open-source research project